Location choice, ownership structure and multinational performance

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LOCATION CHOICE, OWNERSHIP STRUCTURE AND MULTINATIONAL PERFORMANCE

Abstract

Purpose – This paper seeks to link location choice and ownership structure to the debate on the multinationality-performance relationship.

Design/methodology/approach – This paper draws on a panel dataset that covers 1,321 emerging economy multinational enterprises (EMNEs) and includes 4,227 observations from 44 emerging economies between 2004 and 2013.

Findings – In our empirical results, we find that multinationality has a positive effect on EMNEs' performance, and that this positive effect is larger for their investments in developed countries than in developing countries. We also find that this positive effect of foreign operation in developed countries switch to negative at higher levels of multinationality for privately-owned EMNEs than for state-owned EMNEs.

Originality/value – This paper provides new empirical evidence to support an institutional perspective of the internationalisation of EMNEs that are investing in developed countries, contributing to the multinationality-performance literature, highlighting the importance of FDI location decision and ownership structure.

Keywords Emerging economies, Multinationality, Location choice, Ownership structure, Firm performance

Paper Type Research paper

INTRODUCTION

The relationship between multinationality and firm performance has remained an important research issue for business scholars over the past three decades (Contractor et al., 2003; Majocchi and Strange, 2012; Yang and Driffield, 2012; Castellani et al., 2017). Multinational enterprises (MNEs) expand operations across foreign countries. Internationalisation results in costs such as unfamiliarity with foreign markets, sunk costs at early internationalisation and great coordination costs. International expansion also benefits firm performance by helping MNEs access cheaper resources, acquire foreign knowledge, realise economies of scale, and exploit firm-specific assets in foreign markets. Overall, the observed multinationality-performance (MP) relationship is the net effect of these costs and benefits (Contractor, 2007).

This paper seeks to link location choice and ownership structure to the debate on the MP relationship in the emerging economy context. The large MP literature mostly relies on the data from developed countries MNEs, and insufficient attention has been given to the emerging economy multinational enterprises' (EMNEs) international activity, while EMNE's foreign direct investment (FDI) motivation and investment patterns are very different from developed MNEs (DMNEs) (Ramamurti, 2012). Moreover, the extant literature tends to focus on whether the MP relationship is linear; it proposes various functional forms by adding second-order or higher-order terms. The studies on developed MNEs find inconsistent empirical results, including insignificant, positive, negative, U-shaped, inverted U-shaped, S-shaped or even M-shaped relationships. However, they generally ignore how important moderators, such as location choice and ownership structure, shape the MP relationship. Drawing on a dataset of 1,321 emerging economy firms, this paper aims to fill these gaps by providing a better understanding of EMNEs' foreign operations and their performance implications.

FDI location is one important aspect of Dunning's eclectic paradigm (Dunning, 2000). The location decisions might be influenced by a number of country characteristics that include, but are not limited to, low-cost labour force, cheap natural resources, market size and income

level (Dunning, 1988). However, the large literature generally disregards the heterogeneity among different FDI locations and instead chooses an aggregate view of foreign investments. With a few exceptions (Pantzalis, 2001; Berry, 2006), they did not consider the curvilinear MP relationship when considering location choices. Crucially our data have the information regarding the FDI location. We intend to look into whether the returns to multinationality for EMNEs investing in developed countries are different from those investing in developing countries.

We explore the importance of ownership structure in internationalisation and firm performance. Ownership structure affects FDI motivation and interacts with the home and host environments (Li and Oh, 2016); this will then have an impact on firm's multinational performance (Child and Rodrigues, 2005). The extant MP literature gives limited attention to ownership structure, particularly from an institutional perspective. The multinational network determines that the MNE could be influenced by home and host institutional environments (Xu and Shenkar, 2002). We aim to examine how the multinational performance of MNEs is affected by the interaction between institutional ownerships (private vs. state ownership) and institutional environments in the home and host countries. We compare the performance differences between privately-owned enterprises (POEs) and state-owned enterprises' (SOEs) when investing in developed countries.

It is argued that international business scholars should increase the use of longitudinal data to better understand the relative change of an MNE's internationalisation over time (Hennart, 2007). To test our hypothesis, we draw on panel data containing 1,321 MNEs from 44 emerging economies over a period from 2004 to 2013.

As in prior related research, we find an inverted U-shaped MP relationship for EMNEs, which seems to be similar to that of DMNEs in some studies (Ruigrok and Wagner, 2003; Qian et al., 2008); however, additional factors matter in EMNEs. First, although a significant positive

effect of multinationality on performance at the initial stage is proved, we find that this positive effect is larger when investing in developed than in developing countries. In addition, we find that the positive effect of investing in a developed country at the initial stage is stronger for POEs than for SOEs. These results indicate that EMNEs' performance benefits a great deal from the enhanced firm-specific advantage (FSA) derived from assets-augmenting FDI in developed countries. This seems to explain why EMNEs tend to invest more in developed countries than in other developing countries (Ramamurti, 2012). Also, these results seem to explain private EMNEs' institutional escapism (Li and Oh, 2016), and why POEs perform better than SOEs in international operations when facing home institutional push and host institutional pull.

The structure of this paper is as follows. After the introduction section, we provide a review of the relevant literature and develop the hypotheses. Section 3 explains the methodology. Section 4 discusses the regression results. The final section concludes.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Internationalisation provides firms with many benefits (Castellani and Zanfei, 2006). Going abroad can help firms gain access to resources such as cheap labour force (Contractor, 2007). Expanding sales by either exporting or investing abroad allows firms to benefit from economies of scale (Krugman, 1980). MNEs may enjoy reduced costs per unit of output because fixed costs can be spread over a large scale of production. MNEs could exploit their firm-specific assets in the foreign countries and earn abnormal profits, through an internalised multinational network (Castellani and Zanfei, 2007; Buckley and Strange, 2011). When investing abroad, a firm can obtain experience and foreign knowledge, which could help MNEs perceive and seize other foreign markets' opportunity, contributing to their superior performance (Johanson and Vahlne, 1977).

While a number of factors lead to the prediction of a positive effect of multinationality on firm performance, several factors may impose negative impact on profitability. The most important ones are a lack of international experience and growing coordination costs (Qian, 2002). The coordination and governance costs rise with the increased foreign operation (Lu and Beamish, 2004). When operating in multiple countries, the differing institutions and culture add to the complexity of coordination issues (Sundaram and Black, 1992). Hennart (2007) adopts a transaction cost/internalisation (TCI) model to critique the theoretical background of MP literature, particularly focusing on economies of scale, operational flexibility and learning experience. He argues that there is no direct MP relationship. However, Contractor (2007) contends that Hennart's assumptions about MNEs are too stringent and a TCI lens provides too limited a view, indicating alternative perspectives from strategy and international business literature. Contractor concludes that internationalisation is good for companies.

There is a considerable literature on the MP relationship, but much of it uses data on DMNEs. The empirical results are rather mixed. Some empirical evidence supports that international diversification can enhance firm performance (Kim et al., 1993; Goerzen and Beamish, 2003). However, some papers find a negative relationship (Siddharthan and Lall, 1982; Denis et al., 2002). Recently, scholars have focused more on a non-linear relationship. Some empirical works find a U-shaped relationship (Lu and Beamish, 2001; Thomas and Eden, 2004), while others discover an inverted U-shaped relationship (Hitt et al., 1997; Qian et al., 2008). Alternatively, some scholars propose S-shaped (Contractor et al., 2003), inverted S-shaped (Ruigrok et al., 2007) or M-shaped MP relationships (Lee, 2010). For a comprehensive summary of the findings of these extant studies, see the recent meta-analysis of Yang and Driffield (2012).

It can be seen that previous empirical literature provides decidedly mixed evidence of the MP relationship, which may be partly due to the ignorance of important variables such as

location and ownership structure which we will consider in this paper. In addition, these findings are mainly based on the analysis of DMNEs (e.g. US firms). A few exceptions (Contractor et al., 2007; Gaur and Kumar, 2009) only focus on one emerging country. We need to further discuss whether these findings can be applied to MNEs from various emerging economies. EMNEs are different from DMNEs with respect to the content of their FSA. The emerging giants from several countries, including Huawei (China) and Infosys (India), have attracted attention from both scholars and managers (Khanna and Palepu, 2006). It is fascinating and interesting for academics to understand why and how EMNEs go international and subsequently perform.

Multinationality-Performance Relationship and Emerging Economy Multinationals

Drawing on Rugman's CSA/FSA framework, this paper aims to provide a better understanding of the MP relationship for EMNEs. This framework is widely adopted in the international business field to analyse the competitive advantages of an MNE. Linking to internalisation theory (Buckley and Casson, 1976) and the resource-based view (Wernerfelt, 1984), the CSA/FSA framework (Rugman and Verbeke, 2003) emphasises that the interaction and combination of CSAs (e.g., labour force, natural resources) and FSAs (strength, capabilities, unique resources) determine an MNE's internationalisation activities and its performance implications. Prior studies have positioned the majority of EMNEs in quadrant 1 (weak FSAs and strong CSAs) in the CSA/FSA matrix (Li and Oh, 2016).

One may incorrectly conclude that EMNEs do not possess FSAs which are similar to those owned by western MNEs. However, EMNEs do own FSAs and we need to consider a broader definition of FSA that a firm can have. Scholars took comparable efforts to identify the non-traditional and unique FSA of EMNEs (Ramamurti, 2009). Based on Rugman and Verbeke (2003)'s CSA/FSA matrix, firms internationalise by leveraging firm-specific advantages (FSAs) and country-specific advantages (CSAs). EMNEs tend to drive performance by leveraging country-specific advantages rather than traditional firm-specific advantages.

Economies of scale are an important country-specific advantage for EMNEs, as they typically enjoy a large and growing domestic demand base. In addition, EMNEs may have an advantage in the access to some resources (e.g., cheap gas, oil and a cheap semi-skilled labour force). This competitive advantage tends to be location-bound and country-specific (Bhaumik et al., 2016).

EMNEs have non-traditional FSAs in the strategic flexibility in coordinating the use of existing resources and producing low-cost goods (Wright et al., 2005). They have strong capability in adapting the available technology to resource-scarce and labour-intensive production (Bhaumik et al., 2016). For instance, the competitive advantage of India's IT service industry partly relies on the adaptation of existing communication technology and the abundant supply of educated English-speaking Indian workers who graduate from various engineering education institutes in India (Pack and Saggi, 2006). Also, EMNEs have non-traditional FSAs that it is argued helps facilitate leveraging CSA across national borders. Internationalisation allows EMNEs to leverage country-specific advantages (e.g., economies of scale) across various foreign countries, augmenting their FSAs by leveraging location advantage of host countries, enhancing EMNEs competitiveness and performance in the home country (Bhaumik et al., 2016).

Apart from the developing non-traditional FSAs, recently they are also developing the strong FSAs similar to those owned by traditional western MNEs. In emerging economies, a modern set of knowledge-intensive high-tech sectors that are capital-intensive and skill-dependent have grown in parallel with traditional sectors that depend on labour-intensive and natural resource-intensive activities (Narula, 2015). Unlike the DMNEs that use existing resources to expand abroad, EMNEs expand abroad while creating resources (e.g, acquisition of foreign technology) (Cuervo-Cazurra, 2012). EMNEs can quickly enlarge firm-specific advantage through acquisitions of foreign strategic assets (e.g., strong brand, technology), if

they invest a great deal in their own R&D activity and have high absorptive capacity (Narula, 2015).

Indeed, in recent years, EMNEs have become increasingly able to rely on stronger ownership-specific assets (e.g., latest technology) as a result of the co-evolution of their ownership-specific advantages and their home countries' national innovation systems (NIS) (Elia and Santangelo, 2017). The development of country-specific advantages (e.g., knowledge and institutional infrastructure such as universities and R&D clusters conducting research in cutting-edge technologies) in the emerging economies has fed the absorptive capabilities of EMNEs. For instance, China has been ranked number one in the world for host location of greenfield FDI in R&D projects since 2010 (Laursen and Santangelo, 2017). The emerging economies have experienced an upgrade of their technological capabilities and the large availability of talents (Laursen and Santangelo, 2017). This enables them to better understand and absorb the knowledge acquired in the strategic assets augmenting acquisition in developed countries with a strong NIS context (Elia and Santangelo, 2017). This has also fostered the country-specific advantage, and thus the domestic firms' firm-specific advantage (Laursen and Santangelo, 2017).

Given the fast evolution of EMNEs, the international business literature suggests that EMNEs are more and more similar to advanced MNEs in terms of strategic behaviour and performance implications. As the EMNEs become more internationalised or more experienced by operating in a large number of countries, their multinationality does not differ greatly from that of DMNEs, leading to a higher similarity between EMNEs and DMNEs (especially in terms of CSAs and FSAs) (Cuervo-Cazurra, 2012).

We draw on Haans et al. (2016) to have a deeper understanding of how the interplay of costs and benefits shape the effect of multinationality on firm performance. We do this by

considering the two latent mechanisms (benefits of multinationality; costs of multinationality) that determine the relationship (net effects of multinationality on firm performance)

On the one hand, the positive effects are derived from foreign operations. EMNEs have their unique firm-specific advantage derived from country-specific advantage; these include scale economies, natural resources, cheap semi-skilled labour, government support in financing and overseas investment (Bhaumik et al., 2016; Li and Oh, 2016). Their FSAs includes producing products at ultra-low costs, coordinating the use of existing resource, adaptation skills of the available technology, and ability to utilise and upgrade capabilities (Cuervo-Cazurra and Genc, 2008; Ramamurti, 2012). In addition, due to the enhanced absorptive capabilities fed by improved domestic knowledge and institutional infrastructure, they are able to absorb acquired foreign knowledge and develop traditional FSAs (e.g., advanced technology, global brand and good management team) (Laursen and Santangelo, 2017). They are becoming increasingly able to rely on stronger ownership-specific assets (e.g., latest technology) as a result of the co-evolution of their ownership-specific advantage and the home country's national innovation system (NIS) (Elia and Santangelo, 2017). The positive effect is expected to grow at a declining rate, due to the diminishing benefit of FSA when it is overstretched in geographically diverse operations (Tallman and Li, 1996; Hitt et al., 1997).

On the other hand, the negative effects are arising from foreign investment. International operations create managerial complexity due to dissimilar environments such as trade barriers and cultural difference. Coordination problems occur when the firm is operating in unfamiliar foreign environments (Hitt et al., 1997). Managerial complexity increases with multinationality (Grant, 1987), as more intensive foreign operations impose higher requirements on communication and coordination not only between headquarters and overseas subsidiaries, but also among overseas subsidiaries in different countries (Ruigrok and Wagner, 2003). Also, the environmental difference, which increases with the foreign expansion, enhances the risk of

misallocation of resources in firm's various markets (Hitt et al., 1994). This negative effect of an international presence would grow at an increasing rate.

Taking these two counteracting forces of foreign operations on firm performance together, we subtract the convex increasing function from the concave increasing function. The net effect is an inverted U-shaped relationship between multinationality and firm performance. At low levels of multinationality, the positive effect of firm-specific advantage dominates, leading to a positive impact of multinationality on firm performance. In contrast, at high levels of multinationality, the negative effect of accelerating global coordination costs prevails, thus driving a negative impact of diversification on firm performance. Based on the above argument, we propose the following hypothesis.

Hypothesis 1: Multinationality has an inverted U-shaped relationship with firm performance for emerging economy multinationals: (a) there is a positive linear effect and (b) a negative quadratic effect of multinationality on performance.

Considering the possibility that the relative strength of two countervailing effects may vary several times throughout the internationalisation process, which leads to higher function forms such as S-shaped (Contractor, 2007) and inverted S-shaped (Ruigrok et al., 2007) MP relationships, we will test these cubic relationships as a robustness check.

Location Choice

Although we expect the same kind of MP relationship (i.e. inverted U-shaped) for EMNEs relative to DMNEs, additional factors will be relevant in EMNEs, including location choice and ownership structure. To draw a conclusion regarding the MP relationship, most studies discuss internationalisation costs and benefits, and regress the performance measure on different proxies of the multinationality measure. However, the literature generally uses an aggregate measure to examine the multinationality, ignoring the heterogeneity of FDI locations (Beugelsdijk et al., 2010). Yang et al. (2013) find that the returns from foreign direct investment

are determined by the economic distance between the home and host country. A few papers (Pantzalis, 2001; Berry, 2006) examining the role of location on the MP relationship consider the differences between developed and developing countries. Doukas and Travlos (1988)'s results indicate that if a US MNE acquires a firm in an unfamiliar country, this cross-border acquisition can improve the value of the MNE, suggesting that good location choice enhances firm performance. However, they did not find curvilinear MP relationship when considering location choice.

Much research has been done with respect to the FDI flows from developed country to developing countries, an FDI pattern predicted in the product cycle hypothesis (Vernon, 1966; Ramamurti, 2012). However, the opposite FDI pattern, namely from developing countries to developed country, has not received enough attention. Further, this opposite FDI pattern could not be explained by an incremental internationalisation process model (Johanson and Vahlne, 1977). EMNEs from some emerging economies tend to invest more in developed countries (dissimilar to home) than in other developing countries (similar to home) (Ramamurti, 2012). Therefore, we need a more promising explanation of EMNEs' FDI location choice. Also, particular attention should be given to the EMNEs' FDI motivations in developed countries.

It is important to distinguish between asset-exploiting FDI and asset-augmenting FDI. Asset-augmenting FDI has become increasingly important in recent years, particularly among emerging economy MNEs. On the one hand, asset-exploiting FDI prevails among the investments in developing countries. MNEs exploit their firm-specific assets in the developing countries and establish competitiveness in these countries (Dunning, 2000). On the other hand, asset-augmenting FDI dominates among the investments in developed countries. EMNEs acquire foreign strategic assets in the developed countries with the aim of strengthening their capabilities (e.g., technology, marketing and managerial capabilities), leading to enhanced competitiveness and market position in the home countries or other countries (Meyer, 2015).

This explains why EMNEs often adopt a high commitment mode such as acquisition to enter a new market, instead of low commitment and low-risk choice such as establishing sales subsidiaries (Madhok and Keyhani, 2012; Ramamurti, 2012).

The extent of knowledge emerging country firms learn through international expansion in developed countries is positive and pronounced. A meta-analysis by Yang and Driffield (2012) finds that developing country firms are, on average, away from the technology frontier, and could learn customer or segment information in overseas markets, leading to a great improvement in technological capability and knowledge know-how. This finding is in line with reverse knowledge transfer literature that states that countries with high technological capabilities can transfer knowledge back to their headquarters, leading to productivity improvements (Driffield et al., 2016).

Again, we employ the approach of Haans et al. (2016), with particular consideration given to the two counteracting latent mechanisms (benefits of FDI to developed countries; costs of FDI to developed countries) that determine the relationship (net effect of foreign presence in developed countries on firm performance).

On the one hand, the firm's enhanced FSAs resulting from asset-augmenting FDI in developed countries (Makino et al., 2002) reinforces the positive effect of foreign operations on firm performance. Through acquiring firms in developed countries to augment strategic assets (e.g., foreign technology, brand and managerial skills), EMNEs have the opportunity to develop their own intangible assets (e.g., technological capability, marketing skills) under the strong protection of intellectual property in developed countries. This is nearly impossible in the home country context where the poor intellectual property enforcement discourages firms from investing in R&D and creating new products (Gaur and Kumar, 2009). If an EMNE holds a geographically-diversified portfolio with strong presence in developed countries, its performance is likely to benefit from the increased competitiveness and enhanced FSA to be

exploited in the foreign and home markets (Ramamurti, 2012). These effects tend to sharpen the benefit curve at low levels of multinationality and smooth it down at high levels of multinationality; this is because FSA is becoming increasingly overstretched over the geographically diversified operations. This is illustrated by the strengthened latent mechanism of multinationality benefits. In contrast, the attractiveness of developing countries is characterised by cheap labour and raw materials, which largely resemble that of the home country (Berry, 2006). Therefore, the benefits of a reduction in production costs for a developing country firm through investing in other developing countries are small (Qian et al., 2008). Also, it is less likely to enhance FSA through acquiring strategic assets in developing countries where there are less abundant assets of this type. Therefore, the benefits are less for EMNEs investing in developing countries.

On the other hand, the negative effect on firm performance increases faster at high levels of multinationality when EMNEs invest in developed countries. A greater foreign presence in developed countries makes the coordination more likely to be complex; this is due to the increasing differences in economic environment and locational factors among developed countries (Qian et al., 2008). Consequently, we could expect a steeper costs curve, where the costs increase much more rapidly when moving to high multinationality. This could be illustrated by the sharper latent curvilinear mechanism of multinationality costs.

Subtracting such negative effects from positive effects of foreign operations in developed countries generates an inverted U-shaped MP relationship. When comparing the net effect of multinationality in developed countries with that of the baseline model, it indicates the different turning points of the two MP relationships. The turning point tends to shift to the left, together with the steepening inverted U curve, suggesting that the peak firm performance will occur earlier when investing in developed countries.

Hypothesis 2a: Multinationality has a larger positive effect on performance for emerging economy multinationals' investment in developed countries than in developing countries.

Hypothesis 2b: This positive effect of the investment in developed countries will switch to negative at lower levels of multinationality.

Ownership Structure Effects

The final concern of our paper is the important role of ownership in the MP relationship, which is insufficiently examined in the extant literature (Al-Obaidan and Scully, 1993). The multinational structure determines that the MNE can be affected by the institutional environment in the home and host countries (Xu and Shenkar, 2002). Institutional ownership (private vs. state ownership) plays a vital role in EMNEs' internationalisation (Child and Rodrigues, 2005). State-owned enterprises account for many listed firms in several countries such as in China and Singapore (Claessens and Fan, 2002). Among the large firms from the 27 wealthiest economies where privatisation is not finished, 18% are State-owned. State ownership is more common in countries with bad shareholder protection, which is more likely to be the case in emerging economies where the institution is weak (La Porta et al., 1999). Both POEs (privately-owned enterprises) and SOEs (state-owned enterprises) are increasingly engaging in internationalisation activities (Ralston et al., 2006). It is interesting to understand their internationalisation activity and its performance implications. Previous empirical studies show that state ownership has a negative or non-linear relationship with firm's performance (Qi et al., 2000; Claessens and Fan, 2002). However, there is insufficient evidence regarding state-owned enterprise's multinational performance.

FDI motivations play a pivotal role in EMNEs' international activities and their performance (Guillén and García-Canal, 2009). POEs tend to have commercial objectives (e.g., escape motive). They seek to escape the poor institution and constraints of their home country

and explore for a better host country condition (location-specific advantage). Most POEs are relatively small and constrained by an adverse competition environment in the home market (Boisot and Meyer, 2008). Thereby, they are more willing to escape this environment, realising economies of scale in a wider global market. POEs' foreign activities tend to be motivated for economic reasons, suggesting that POEs internationalise for value-adding activities (Lin, 2010). This brings benefits to the host country, including spillover efficiency benefits (Globerman and Shapiro, 2009). Therefore, compared with SOEs, POEs' FDI activities face less host government discrimination.

SOEs are less likely to have an escape motive since their embeddedness in the political system and their relationship with government guarantees access to domestic financial resources (Li and Oh, 2016). Instead, SOEs have non-commercial objectives. As SOEs' state ownership conflicts with the dominant ideology in the host country where the market force dominates the economy, their non-commercial objectives may damage the economic infrastructure, imposing costs and risks to the host country (Globerman and Shapiro, 2009). SOEs have to earn legitimacy, as institutional pressures on SOEs are particularly strong when they enter developed countries that have a strong institutional environment (La Porta et al., 1999; Meyer et al., 2014). SOEs' foreign acquisition projects are more likely to be restricted by the host government (Cui and Jiang, 2012). Therefore, SOEs are more likely to enter the developed countries through greenfield investment (Meyer et al., 2014).

We compare the MP relationships for EMNEs with two types of ownership, namely private and state ownership. EMNEs' investment in developed countries has been of particular interest since the recent pivotal phenomenon of POEs' institutional escapism and SOEs' investment in developed countries (Li and Oh, 2016). On the one hand, we maintain that the positive effect of multinationality in investment in developed countries is strengthened for POEs. The extent to which POEs and SOEs escape from home country institutional pressure is

different. POEs' goals conflict with those of the home government and complement those of the host government (Li and Oh, 2016). POEs have the incentive to escape from poor home conditions (institutional constraints such as limited access to financial resources, political instability such as a massive negative consequence from allying themselves with the 'wrong' political parties, and poor intellectual property protection) and look for better host conditions; this is also called POEs' institutional escapism (Witt and Lewin, 2007; Cuervo-Cazurra et al., 2015; Luiz et al., 2017; Krammer et al., 2018). By investing abroad, POEs not only avoid the poor institutions that limit their development in their home countries, they also gain efficiency improvement from operating at an international scale and develop their FSA by acquiring strategic assets in the host country (Cuervo-Cazurra et al., 2015). Therefore, POEs could be more efficient in exploring foreign countries and benefit more from international operations than SOEs.

The positive effects of multinationality on investment in developed countries are smaller for SOEs. SOEs are embedded in the political systems and can leverage their relationship with the government to mitigate the negative effect of a weak home institutional environment. SOEs' internationalisation goals complement those of the home government and conflict with those of the host government. SOEs are therefore less likely to escape from the home country (Li and Oh, 2016). SOEs may have other non-commercial objectives, such as public policy goals, establishing a foothold, securing crucial natural resources for the home economy and acquiring advanced technology which may be passed to other SOEs in the military sector (Meyer et al., 2014). These non-commercial objectives impose costs and risk to the host country. The host country tends to resist or discriminate against foreign SOEs' investment (Globerman and Shapiro, 2009). To overcome distrust, SOEs are inclined to adapt their foreign entry strategies to the host's institutional pressure. SOEs are less likely to employ acquisition as the establishment mode, and more likely to adopt a low ownership control mode relative to POEs

(Meyer et al., 2014). Therefore, SOEs tend to be less able to benefit from the enhanced FSA derived from the acquisition of foreign technology, and the larger internalisation benefits resulting from a high ownership control mode. The positive effects for POEs and SOEs are both expected to grow at a decreasing rate, due to the diminishing benefits of FSAs when overstretched in geographically-diverse operation.

On the other hand, the negative effects of multinationality are smaller for POEs than SOEs. Compared with SOEs that face host country discrimination due to their non-commercial objectives, POEs tend to enjoy host institutional pull and face less host country discrimination due to their commercial objectives (e.g., profitability) which are regarded as beneficial to the host economy (Globerman and Shapiro, 2009). The negative effects for POEs and SOEs are both expected to rise at an increasing rate; this is because of the accelerating coordination costs and risk of resources misallocation in geographically-diverse markets.

The differences of multinationality benefits and costs between POEs and SOEs lead to the different turning points of quadratic net effects. The positive effect of multinationality on performance is strengthened for firms under control of private ownership. It sharpens the benefits curve of POEs at a low multinationality level, and smooths it down at a high multinationality level. The negative effect is weakened for privately-owned firms. The costs curve for POEs is increasing at a lower rate compared with SOEs. The turning point shifts to the right for POEs relative to SOEs when investing in a developed country. Our research model is presented in Figure 1.

Hypothesis 3a: Multinationality has a larger positive effect on performance for privately-owned enterprises than for state-owned enterprises when investing in developed countries.

Hypothesis 3b: This positive effect will switch to negative at higher levels of multinationality for privately-owned enterprises relative to state-owned enterprises.

FIGURE 1 ABOUT HERE

METHOD

Data

Company data are collected from Orbis dataset whose information is maintained by a consultancy called Bureau van Dijck. It provides MNEs' detailed accounting information, parent-subsidiary ownership links, and locations of subsidiaries. We select EMNEs that have an ownership stake of minimum 10.01% (Bureau of Economic Analysis, 1999) of its foreign subsidiaries and have information about subsidiaries' location. Such that, we can calculate a key explanatory variable MULT (multinationality, calculated as overseas/total subsidiaries). Information is available from 2004 to 2013.

We select firms that have data available on return on assets, employees, leverage, sales, parent's ownership structure, parent's ownership stake of subsidiaries and their locations. Country-level data (GDP per capita and GDP growth, institution) are collected from World Bank sources. Firms with missing values for any of these variables are excluded. In the panel dataset, on average, each firm has 3.2 years observations. All monetary measures are reported in US dollars. The final sample includes 1,321 firms with 4,227 observations from 44 emerging economies. Our panel data allow us to examine the dynamic relationships within the data, which is not possible with pure cross-sectional data as in many prior studies (Wooldridge, 2010).

The Empirical Specification

Multiple regression models with fixed effects estimators are employed. Following the empirical specification of several scholar's works (Contractor et al., 2003; Ruigrok et al., 2007), we use multiple regression models to test the above three hypotheses. We compare the fixed effects estimates and random effects estimates using misspecification test. The results reject random effects application (Hausman, 1978). Thus multiple regression models with fixed effects estimators are employed.

To examine the inverted U-shaped MP relationship (hypothesis 1), the following equations are presented.

$$Y_{it} = \beta_1 MULT_{it} + \beta_2 \left(MULT_{it}\right)^2 + \lambda X_{it} + \gamma_t + e_{it}, \quad (1)$$

It is important to include the second-order term in the equation. A significant negative β_2 indicates an inverted U-shaped relationship, while a significant positive β_2 suggests a U-shaped relationship (Meyer, 2009; Lind and Mehlum, 2010; Haans et al., 2016).

To examine the impact of location decision and ownership structure on MP relationship (hypotheses 2-3), the following equation is introduced.

$$Y_{it} = \beta_3 MULT_{it}^{D'ED} + \beta_4 \left(MULT_{it}^{D'ED}\right)^2 + \beta_5 MULT_{it}^{D'ING} + \beta_6 \left(MULT_{it}^{D'ING}\right)^2 + \lambda X_{it} + \gamma_t + e_{it}, \quad (2)$$

We again include the second-order terms of ($MULT^{D'ED}$ and $MULT^{D'IND}$) in equation 2 to test the curvilinear MP relationship when considering location choice. The main focus is the term β_4 with respect to hypotheses 2-3. The main variables in the above equations are explained as follows.

Dependent variable. Y_{it} refers to the firm performance. In this paper, it is measured by return on assets. Return on assets (the ratio of net income to total assets (Lu and Beamish, 2004)) has been widely used in the previous MP literature (Lu and Beamish, 2004; Ruigrok et al., 2007; Qian et al., 2008).

Explanatory variables. This paper uses the number of overseas subsidiaries divided by total number of subsidiaries as a proxy for multinationality (MULT) (Yang et al., 2013; Castellani et al., 2017). Other scholars have used different measures[1] of multinationality. The most common measure is FSTS (foreign/total sales). FSTS does not distinguish between exports and sales from overseas production. Further, after exploiting the data availability of Orbis, we found difficulty in identifying foreign sales subtracting exporting and licensing when using FSTS measure. FATA (foreign/total assets) does not take account of internationalisation through exports and is highly correlated with FSTS (Annavarjula et al., 2006). Therefore, FSTS

and FATA are ruled out. Meanwhile, OSTS does not distinguish business production and sales subsidiaries, or take into account the size of the subsidiaries. Though OSTS is not perfect, it is the only feasible measure using Orbis dataset because Orbis has the information about the number of subsidiaries and their locations.

In order to capture the effects of different location choices of FDI on MP relationship, particularly considering the developed and developing countries (Berry, 2006) defined by the (World Bank, 2013), we create two more variables, namely $MULT_{it}^{D'ED}$ and $MULT_{it}^{D'ING}$, which are defined as the number of foreign subsidiaries in developed (developing) nations divided by total number of subsidiaries. The developed (developing) nations are defined as high-income (middle- and low-income) countries in the (World Bank, 2013).

Control variables. Following prior work (Geringer et al., 2000), several variables that are known to affect business performance and be correlated with multinationality are controlled in the empirical models, represented by X_{it}, involving employee count, leverage and sales per worker. Firms with large size (SIZE) (Zahra et al., 2000) tend to perform better than small firm. Leverage (LEV) (Qian et al., 2008) is expected to have a negative impact on firm performance, since risky debt results in firm's sub-optimal investment strategy. Firms with high labour productivity (PROD) are more likely to have higher performance than firms with low labour productivity (Al-Obaidan and Scully, 1993). Firm age (AGE), as a proxy for experience, may affect the level of learning, international activities and multinational performance (Zahra et al., 2000). We control firm's home country characteristics, including GDP per capita (ECON) and GDP growth (GROW) (Li and Qian, 2005), retrieved from World Development Indicators (WDI). Home and host institutional dimensions are included since FDI escapes from home countries with poor institution and is attracted to countries with good institution (Li and Oh, 2016). We adopt the widely used Worldwide Governance Indicators (WGI) (Cuervo-Cazurra and Genc, 2008; Driffield et al., 2016) provided by Kaufmann et al. (2009). Following prior

studies (Kolstad and Wiig, 2012), we employ voice and accountability in the analysis since it captures the perception of the extent to which the citizens are able to participate in selecting the government, freedom of expression, association and free media (Kaufmann et al., 2009). We also use other dimensions of WGI to measure institutional quality and find similar results (available upon request). The quality of the home country institution (HOMI) is measured by voice and accountability for the EMNE's home countries. The quality of the host country institutions (HOSI) is measured by the average score of voice and accountability for the EMNE's host countries. In addition, firm performance may be affected by unobserved macroeconomic factors over the period. Therefore, we control for time fixed-effects γ (Yang et al., 2013). We also control for firm fixed-effects (Berry, 2006). Table 1 provides definitions and sources of data for the variables included in the empirical models.

TABLE 1 ABOUT HERE

RESULTS

Descriptive Statistics

Table 2 shows the descriptive statistics. On average, an emerging economy multinational has 57 percent subsidiaries locating in overseas countries. It sets up 36 percent subsidiaries in overseas developed countries, 22 percent subsidiaries in overseas developing countries. We also find that, on average, return on assets is 5.21%, labour force is 12,663, labour productivity is US$ 1,141.91 thousand, leverage is 73% and age is 29.47. As shown in the right panel, most of the correlation coefficients are low.

TABLE 2 ABOUT HERE

The data cover 177 economies, including 44 home emerging economies[2] and 177 host economies[3]. Table 3 presents the home economy list and the mean value for key variables by each economy, including Y, MULT, $MULT^{D'ED}$, $MULT^{D'IND}$ and SIZE. Unsurprisingly, the parents are concentrated on large emerging economies, with significant numbers in the BRICS

economies (a major emerging economies group that includes Brazil, Russia, India, China and South Africa) (Holtbrügge and Kreppel, 2012), which comprise 33% of all parents in the sample. The host economy list (available upon request) shows that the EMNEs' top host locations (as measured by the greatest number of foreign subsidiaries) are China, Hong Kong, US, British Virgin Islands, Russia, UK, Singapore, Mexico, Netherlands, Poland, Czech Republic, Australia, Germany, Brazil and South Korea.

TABLE 3 ABOUT HERE

Figure 2 offers a better understanding of our data coverage and FDI location choices. Our data cover 177 economies. 44 emerging economies have both parent and subsidiary information (in black). 133 economies have only subsidiary information (in light grey). Economies with no information are in blank. As we can see from Figure 2, most emerging markets locate in East Asia, South Asia, Southeast Asia, CEE (Central and Eastern Europe), South Africa and Latin America. The emerging economies' FDIs flow into developed economies (mainly in North America, Western Europe, Oceania and Japan), developing economies (mainly in Central Asia, Middle East and Africa), and flow among emerging economies.

FIGURE 2 ABOUT HERE

Regression Results

Regression models with fixed-effects estimators are employed. We control for firm and time fixed effects. Table 4 shows the main results. One column represents one model. There are 4,227 observations in the full sample. Most control variables are significant and have the expected signs. For instance, firm size (SIZE) and labour productivity (PROD) have significant positive coefficients, suggesting large firms and firms with high labour productivity perform better. Moreover, these signs remain largely unchanged across different specifications in Models 1-8.

Models 1-2 in Table 4 are to test hypothesis 1. The key variable of our interest is MULT. Following prior work that studies the curvilinear relationship (Chang and Park, 2005), we gradually add the higher-order terms into the models. In Model 1, which assumes the linear relationship, we find a significant positive sign of MULT, suggesting multinationality has positive impact on firm performance.

TABLE 4 ABOUT HERE

We add the squared term of MULT in Model 2 to test the curvilinear relationship. The F-test comparing two models indicates that the Model 2 is significantly (at 10 percent level) better than Model 1 by introducing the squared term of MULT. We find (from Model 2) the negative sign of squared term (significant at 10% level) and positive sign of linear term (significant at 5% level), which suggest there is inverted U-shaped MP relationship. The optimal level is 69.66%. This indicates that EMNEs can benefit from investing in overseas countries initially, although the costs will exceed benefits when the firm has 69.66% subsidiaries locating in overseas countries. Overall, Models 1-2 support the hypothesis 1 and confirm an inverted U-shaped MP relationship for EMNEs. As EMNEs become more experienced, they do not greatly differ from DMNEs. EMNEs are increasingly able to rely on stronger firm-specific assets as a result of the co-evolution of their firm-specific advantages and the home country national innovation system. Meanwhile, coordination costs are accelerating at high level of multinationality. Hence, it is unsurprising to see that EMNEs have inverted U-shaped MP relationship that is similar to the results of DMNEs (Hitt et al., 1997), but additional factors (e.g., location choice and ownership structure) still matter for EMNEs.

Models 3-8 are used to test hypotheses 2a and 2b. We divide MULT into two parts, namely $MULT^{D'ED}$ and $MULT^{D'IND}$. Models 3-4 and 5-6 show separately the performance implications of developed and developing country subsidiaries. In Models 7-8, when we control

for $MULT^{D'ED}$, $MULT^{D'IND}$ and their higher-order terms, the developed MULT's coefficients have much clearer pattern of positive relationship in linear model and inverted U-shaped relationship in curvilinear model, compared with developing country subsidiaries whose coefficients are not significant. We interpret that developed countries' subsidiaries have a significant positive effect on firm performance. This positive effect will switch to negative at a multinationality of 54.04%. Therefore hypotheses 2a and 2b are supported. Developed countries have abundant technological resource and strong institutional protection on investment and intellectual property. This helps EMNEs enhance their FSAs by acquiring new resources and competence that are not available in the home country. Their enhanced FSAs strengthens the positive effect of multinationality on performance. However, the coordination costs increase faster at high level of multinationality in developed countries, due to the increasing difference in economic environment and locational factors among developed countries. Therefore, the positive effect of developed country subsidiaries will switch to negative at lower level of multinationality.

Table 5 is to test hypotheses 3a and 3b, whether ownership structure matters in MP relationship. We rerun equations 1-2, but using two subsamples. The first subsample consists of 1,206 POEs. The second subsample consists of 115 SOEs. The difference in these two numbers is reasonable because SOEs is usually the minority group in emerging economies after economic reform. However, this minority group often plays an important role in emerging economies and are increasingly investing abroad (Ralston et al., 2006).

TABLE 5 ABOUT HERE

Models 1-4 report the results for POEs. We again find that investing in foreign countries has a significant positive effect on firm performance at initial stage. The positive linear and negative quadratic term are significant at 5% level and 10% level respectively, suggesting there

is an inverted U-shaped MP relationship for POEs. Similar to the results in full sample, setting up subsidiaries in developed countries enhances firm's performance, while investing in developing countries does not have significant effect on firm performance. The turning point is 55.59% for the privately-owned enterprises' overseas developed country investment.

Models 5-8 present the results for state-owned emerging MNEs. The number of observations drops substantially, which may have implications with respect to the statistical significance of the results. We find no significant linear MP relationship. We find significant quadratic relationship when considering FDI location choice. We find foreign presence in developed countries has an inverted U-shaped relationship with SOEs' performance, whose turning point is 47.89%. Overall, these results indicate that POEs have large positive effect of foreign operation on performance, and this positive effect switch to negative at higher level of multinationality relative to SOEs. Thus hypotheses 3a and 3b are supported.

To check the robustness of our primary results, we perform several robustness tests. First, in some curvilinear relationships, the relative strength of two counteracting effects might vary several times throughout the range of variable, suggesting higher function forms (e.g., cubic). For instance, in S-shaped relationship, the negative effect dominates at low and high levels while the positive effect dominates at moderate level (Meyer, 2009). To check whether the relationship is perhaps cubic rather than quadratic, following Haans et al. (2016) and Meyer (2009), we added a cubic term and propose the following equation. The results (available upon request) show that the cubic term is not significant and did not improve the model fit, thus strongly supporting the quadratic relationship.

$$Y_{it} = \beta_7 MULT_{it} + \beta_8 \left(MULT_{it}\right)^2 + \beta_9 \left(MULT_{it}\right)^3 + \lambda X_{it} + \gamma_t + e_{it}, \quad (3)$$

Second, we break the sample period to investigate a possible evolution of the MP relationship over time. The results (available upon request) show that there is a U-shaped MP relationship during a period of 2004-2007, while an inverted U-shaped MP relationship over a

period of 2008-2013 (though the coefficient on the quadratic term is marginally significant at 15% level). A possible explanation might come from Contractor et al. (2007). They propose a "stages" model which suggests that firms make losses due to the huge set-up costs at the initial internationalisation stage, obtain profits later because of various benefits of multinationality, and experience again negative performance resulting from accelerating coordination costs when internationalise too much. Therefore, the first part of U-shaped and the second part of inverted U-shape MP relationship might jointly form the S-shaped relationship. They find a U-shaped relationship for the Indian firms in the period 1997-2001, and suggested that this might be the first part of an S-shaped relationship, while the second part (i.e. inverted U-shaped) would have arisen later with the development of the EMNEs. It may well be that our analysis is capturing the second part of this S-shaped relationship.

Given the fast evolution of EMNEs (Elia and Santangelo, 2017), the MP relationship might have evolved over time and EMNEs has experienced the first part in 2004-2007 and reached the second part in 2008-2013. However, our results indicate that the majority of EMNEs and time period (six years out of ten-year time span) may occupy the second part, suggesting an initial upward slope and followed by a downward slope of multinationality's effect on firm performance (an inverted U-shaped relationship). Also, we consider different ownership threshold. We restrict our sample by only including foreign subsidiaries whose minimum 25.01% equity is owned by parent (Yang et al., 2013). The results (available upon request) reaffirm that EMNEs' investment in overseas countries has a positive effect on performance before a certain level of multinationality.

Next, FDI is a strategic decision of firms, so endogeneity should be taken into account. Perhaps better-performing firms invest more in overseas countries. The use of firm fixed-effects can certainly alleviate these estimation problems. Further, we conduct a robustness check by lagging all independent variables and rerun the analysis. Though this method cannot fully

resolve the endogeneity issue, it does mitigate the reverse causality problem (Lin, 2014). The results (available upon request) show that the inverted U-shaped MP relationship largely remains in different lag models, including from one-year to three-year lag models.

In addition, there are potential issues in using the ratio of the foreign subsidiary count to total subsidiaries count. We consider the fact that a firm (A) with one domestic and one foreign subsidiary has the same multinationality as the other firm (B) with 10 domestic and ten foreign subsidiaries. To address this issue, we consider a set of alternative multinationality measure, including OS (the number of overseas subsidiaries), OC (the number of overseas countries), and FSTS (The ratio of overseas majority-owned subsidiaries' sales to all majority-owned subsidiaries' sales). The results (available upon request) show that there is a U-shaped relationship for developed country subsidiaries when measured by OS, given the negative linear term and positive quadratic term, and the quadratic term is significant. Moreover, we consider alternative performance measures, namely ROS (return on sales), ROE (return on equity), net profit and gross profit. The results (available upon request) reaffirm the inverted U-shaped MP relationship, particularly in the case of developed countries subsidiaries. Finally, we expand and explore further the effect of ownership structure on the returns from multinationality, particularly by considering POEs' characteristics such as industrial context (high-tech vs. low-tech sectors; manufacturing vs. service sectors) (Mayer et al., 2015; Berry and Kaul, 2016). Generally, these results (available upon request) support that the significance of inverted U-shaped MP relationship varies across industrial contexts. The turning points also vary for these different types of POEs.

Overall, we regard the results of robustness tests as supportive to our primary finding. Developed country subsidiaries play a more important role in enhancing EMNEs' performance than developing country subsidiaries before a certain level of multinationality.

DISCUSSION AND CONCLUSIONS

The extant literature on the MP relationship has been largely limited to MNEs from developed economies (mainly US firms) and to some individual emerging economies (e.g., India). In this paper we present empirical evidence for MNEs from various emerging economies. Moreover, although location advantage is emphasised in eclectic theory, surprisingly most MP literature disregards the huge differences between developed and developing countries and uses an aggregate multinationality measure. In addition, ownership structure is rarely considered in previous MP studies, while institutional ownerships (private vs. state ownership) plays a vital role in multinational performance. From an institutional perspective, POEs and SOEs are affected differently by home and host institutional environment when they go abroad. Finally, most of the data used in extant MP papers are cross-sectional in nature. This prevents those papers from controlling unobserved firm fixed effects and analysing the dynamic nature of the multinationality over time. These research gaps are filled in this paper by using a panel data from a sample that includes 1,321 multinationals from 44 emerging economies over a period from 2004 to 2013.

This paper provides new empirical evidence on emerging economy MNEs, contributing to the existing MP literature, highlighting the importance of FDI location and ownership structure. First, our main finding is that while a general positive pattern exists in EMNEs' MP relationship, this positive relationship is strengthened in the case of developed country subsidiaries. These results are to some extent consistent with Berry (2006) and Qian et al. (2008)'s finding, suggesting that investing in developed countries could strengthen the performance enhancement arising from foreign operation.

Our results emphasise the great benefits of foreign operation to EMNEs' performance, particularly for foreign operation in developed countries, before the optimal level of multinationality. EMNEs have their unique FSA that mainly derives from CSA, such as the adaptation skills of the available technology, and the ability to utilise and upgrade the

capabilities. EMNEs are also developing western MNEs' traditional FSA (e.g., latest technology, brand and managerial skills) through acquiring foreign strategic assets. The positive effect of FSA help EMNEs realise the multinationality benefits at the initial stage of internationalisation. Therefore, it is unsurprising to find that EMNEs have inverted U-shaped MP relationship that is similar to the results of DMNEs (Hitt et al., 1997). However, additional factors, such as location choice and ownership structure, is relevant in EMNEs. Also, given the possible evolution of MP relationship over time, it may well be that the EMNEs' MP relationship has evolved from the U shape during 1997-2001 in Contractor et al. (2007)'s study to inverted U shape during 2004-2013 in our paper. The majority of the EMNEs in our analysis might occupy the second part of an S-shaped relationship that is proposed by Contractor et al. (2003).

Moreover, the advanced countries are associated with high technological capability and institutional conditions, and this facilitates the extent of knowledge flows from host country to home country (Martins and Yang, 2009; Driffield et al., 2016), leading to performance improvement. Hence, regarding the FDI location strategy, emerging market multinationals are advised to set up a moderate number of overseas subsidiaries in developed countries. We find that the positive effect of developed country subsidiaries will switch to negative occurs at certain level of multinationality (54.04%) due to increasing coordination costs. Qian et al. (2008), for instance, find that diversification into a moderate number of developed countries benefits firm performance.

The final results suggest the important effect of ownership structure on EMNEs' multinational performance. It indicates the relative success of POEs in the foreign expansion, compared with SOEs. The positive effect of multinationality is strengthened for the EMNEs who are privately-owned. The turning point shifts to higher level of multinationality for POEs (55.59%), compared with SOEs (47.89%). In the face of home country's institutional pressure

and host country's institutional pull, POEs are motivated to escape from the adverse institutional environment and benefit from the better conditions in developed countries. In contrast, SOEs are embedded in the favourable home institutional environment and have to adapt their entry strategies when entering developed country due to their poor political image. They are less likely to adopt acquisition as the establishment mode due to the host institutional pressure. Therefore, they are less able to obtain the benefit of the enhanced FSA from the acquisition of foreign strategic assets (e.g., foreign technology). This provides some evidence on POEs' institutional escapism and SOEs' investment in developed countries (Li and Oh, 2016). We believe our findings provide an understanding of EMNEs' internationalisation behaviour. There is a surge of FDI outflow from emerging economies since 2000 (UNCTAD, 2017). We also believe it has some important managerial implications. It helps to explain, for instance, why emerging economy firms are actively investing in developed countries, as well as why POEs are more successful in the expansion to developed countries than SOEs.

Although this paper advances the research on firm's foreign investment behaviour by unveiling its complex performance implications under important underlying factors such as location choice and ownership structure. This research is not free of certain limitations that may point to interesting further research directions. First, our multinationality-performance study currently focuses on emerging economy multinational enterprise. It may prove interesting for future study to estimate an MP model with data from both emerging economy and developed economy multinational enterprises so as to test for differences between the two groups. In addition, FDI is a strategic decision of firms, so the endogeneity issue needs to be properly addressed. Perhaps better-performing firms are more likely to go abroad and can afford to establish overseas subsidiaries. Our estimates do not rule out some form of reverse causality. In addition, our analysis covers a period until 2013. Given the rapid and evolving phenomenon of EMNEs, further research could seek to extend our study by repeating the same tests for more

recent years and investigate the causal relationship between multinationality and performance. Lastly, we have considered the industry context of privately-owned firms, such as comparing high-tech/low-tech and manufacturing/service sectors. Future research avenues are encouraged to expand and explored further by considering characteristics of these privately-owned firms such as size and experience. We leave these topics for further research.

[1] For thorough review of different measures see Hassel et al. (2003).

[2] These 44 emerging economies include Argentina, Bahrain, Brazil, Bulgaria, Chile, China, Colombia, Czech Republic, Egypt, Estonia, Greece, Hong Kong, Hungary, India, Indonesia, Israel, Jordan, Kuwait, Latvia, Lithuania, Malaysia, Mexico, Morocco, Nigeria, Oman, Pakistan, Peru, Philippines, Poland, Qatar, South, Korea, Romania, Russia, Saudi, Arabia, Singapore, Slovakia, Slovenia, South Africa, Sri, Lanka, Thailand, Turkey, Ukraine, UAE, Vietnam. To capture the largest possible country coverage of the emerging economy group, the country grouping is based on the definitions provided by several institutions (IMF, BRICS+NEXT Eleven, FTSE, MSCI, S&P, EM bond index, Dow Jones, Russell, Columbia University EMGP) and prior studies (Bebenroth and Hemmert, 2015).

[3]The 177 host countries include Afghanistan, Albania, Algeria, Angola, Antigua and Barbud, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bermuda, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cayman Islands, Central African Republic, Chile, China, Colombia, Congo, Congo Democratic, Costa Rica, Cote d'Ivoire, Croatia, Curacao, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, HongKong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kosovo, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macao, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Moldova Republic, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palestinian Territories, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Samoa, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, South Africa, South Korea, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania United Republic, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, UAE, UK, US, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

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Figure 1: The Research Model

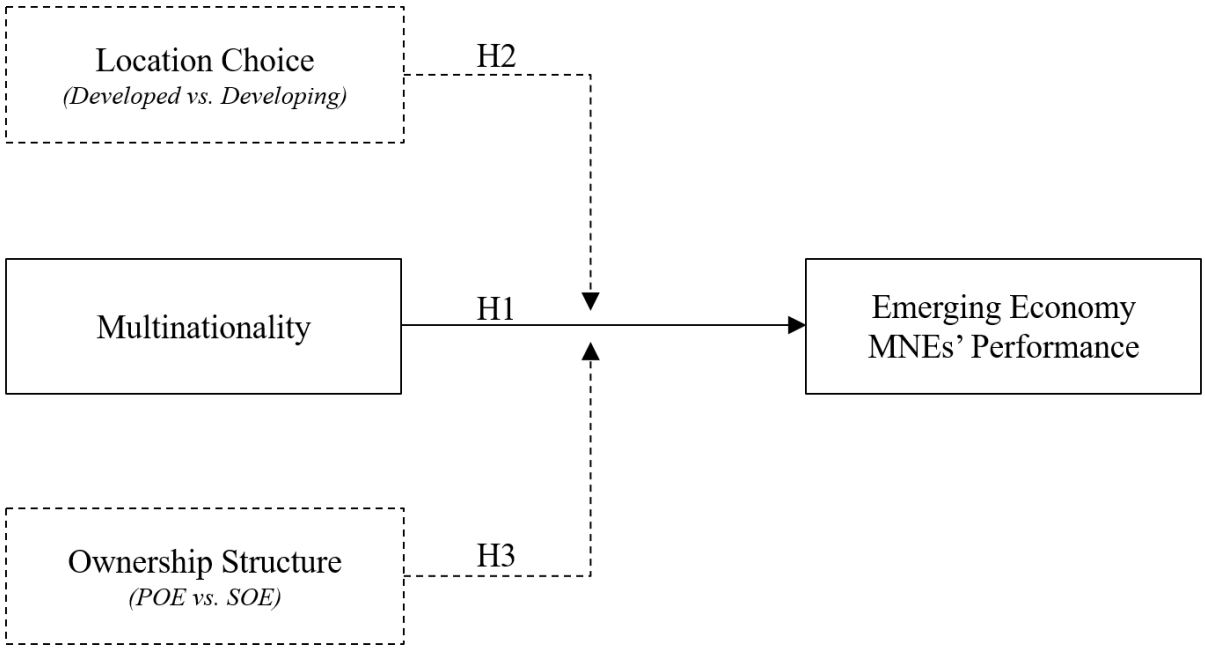
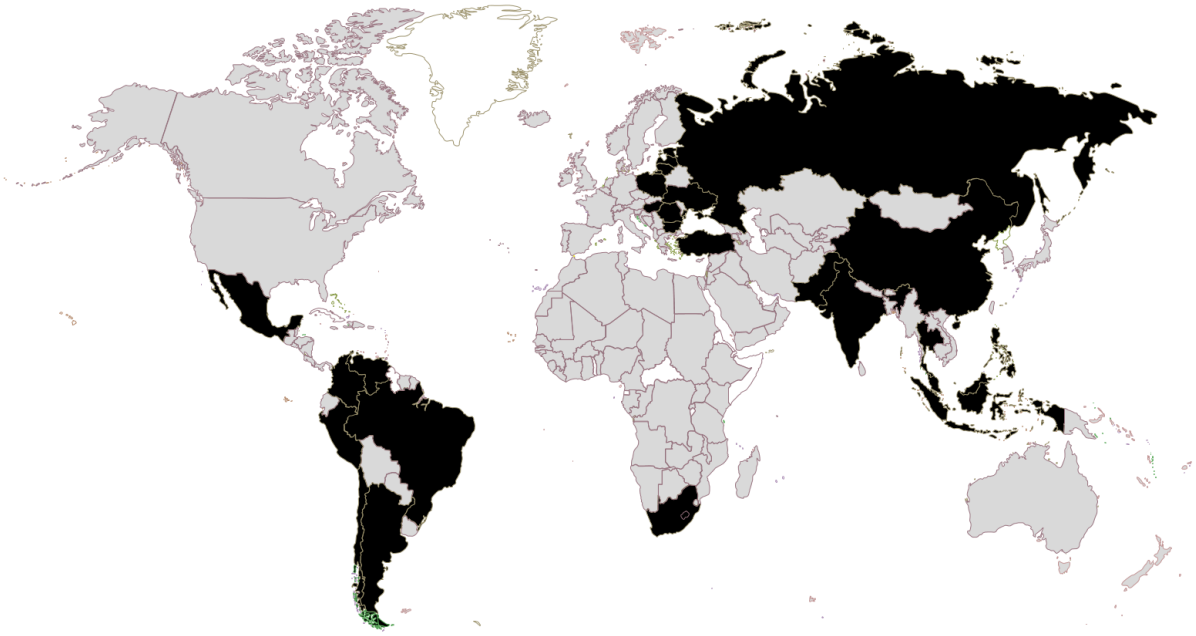


Figure 2: Country Coverage



Note: Our data cover 177 countries. We have 44 economies with both parent and subsidiary information (in black). We have 133 countries with only subsidiary information (in light grey). Countries with no information are in blank.

TABLES

Table 1: Operationalization of Variables

Variable	Operationalisation	Source
Y	The firm's return on assets using net income (%)	Orbis
MULT	The ratio of the number of overseas subsidiaries to total number of subsidiaries	Orbis
$MULT^{D'ED}$	The ratio of the number of subsidiaries in overseas developed countries to total number of subsidiaries	Orbis
$MULT^{D'ING}$	The ratio of the number of subsidiaries in overseas developing countries to total number of subsidiaries	Orbis
SIZE	The natural logarithm of the firm's number of employees	Orbis
LEV	The firm's debt to equity ratio	Orbis
PROD	The natural logarithm of the firm's sales divided by the number of employees (US$)	Orbis
AGE	The age of the firm (in years) since the date of establishment	Orbis
ECON	The natural logarithm of the home country's GDP per capita (US$)	WDI
GROW	The home country's GDP annual growth rate (%)	WDI
HOMI	The "voice and accountability" score for the home country of the EMNE	WGI
HOSI	The average "voice and accountability" score for host countries in which the EMNE has subsidiaries	WGI

Note: We take the natural logarithm of employee count, labour productivity, firm age and GDP per capita (plus 1 since the logarithm is not defined for zero) (Majocchi and Strange, 2012) in order to normalise their distribution.

Table 2: Descriptive Statistics

	Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12
1.	Y	5.21	9.30	1											
2.	MULT	0.57	0.26	-0.01	1										
3.	$MULT^{D'ED}$	0.36	0.25	-0.04	0.54	1									
4.	$MULT^{D'ING}$	0.22	0.24	0.03	0.51	-0.45	1								
5.	SIZE	7.79	2.13	0.05	0.15	0.09	0.07	1							
6.	LEV	0.73	0.60	-0.29	0.02	0.02	0.00	0.14	1						
7.	PROD	12.43	1.30	0.07	-0.02	0.00	-0.02	-0.23	0.11	1					
8.	AGE	3.11	0.78	-0.01	0.19	0.03	0.17	0.15	0.04	0.02	1				
9.	ECON	9.31	0.94	-0.08	0.19	-0.02	0.22	-0.24	-0.06	0.15	0.10	1			
10.	GROW	4.32	5.06	0.11	-0.13	0.04	-0.18	0.28	0.03	-0.08	-0.16	-0.47	1		
11.	HOMI	0.03	1.00	0.03	0.22	-0.02	0.26	-0.31	-0.11	0.11	0.27	0.54	-0.59	1	
12.	HOSI	0.31	0.97	0.02	-0.20	0.25	-0.47	-0.13	-0.07	0.04	-0.13	-0.12	-0.04	0.08	1

Note: There are 4,227 observations. All correlation coefficients have a value of above 0.11 are at least significant at 10% level.

Table 3: Number of Firms and Key Variables by EMNEs' Home Economy

Country	N	Y	MULT	$MULT^{D'ED}$	$MULT^{D'ING}$	SIZE
Argentina	3	11.80	0.43	0.14	0.29	9,064
Bahrain	1	13.51	0.72	0.44	0.28	532
Brazil	28	5.77	0.58	0.31	0.27	24,022
Bulgaria	24	5.75	0.38	0.21	0.17	610
Chile	13	5.04	0.57	0.08	0.49	3,045
China	260	4.33	0.43	0.37	0.07	21,579
Colombia	10	5.10	0.68	0.15	0.53	6,930
Czech Republic	123	6.34	0.47	0.41	0.07	1,885
Egypt	3	17.48	0.69	0.41	0.28	22,965
Estonia	39	5.42	0.55	0.10	0.44	675
Greece	81	2.29	0.63	0.32	0.30	3,309
Hong Kong	87	4.85	0.72	0.32	0.40	17,803
Hungary	11	7.17	0.76	0.40	0.36	7,995
India	62	9.76	0.80	0.55	0.26	23,901
Indonesia	13	3.41	0.51	0.33	0.18	7,840
Israel	36	0.81	0.81	0.66	0.15	2,403
Jordan	2	2.78	0.65	0.40	0.25	80
Kuwait	24	0.76	0.75	0.50	0.25	4,521
Latvia	21	3.44	0.59	0.35	0.24	452
Lithuania	23	8.13	0.53	0.21	0.32	956
Malaysia	20	6.06	0.67	0.46	0.21	19,106
Mexico	18	5.60	0.44	0.23	0.20	26,725
Morocco	2	15.85	0.62	0.06	0.57	12,147
Nigeria	1	2.57	0.71	0.48	0.23	587
Oman	5	4.97	0.56	0.39	0.18	2,999
Pakistan	3	-1.21	0.34	0.05	0.29	2,385
Peru	2	16.92	0.54	0.17	0.38	3,803
Philippines	15	7.49	0.62	0.42	0.20	9,929
Poland	73	7.19	0.52	0.35	0.18	4,958
Qatar	4	12.54	0.57	0.47	0.10	1,929
Romania	10	3.53	0.44	0.13	0.31	7,348
Russia	38	8.05	0.40	0.24	0.16	34,325
Saudi Arabia	10	3.97	0.72	0.44	0.28	6,305
Singapore	30	6.12	0.76	0.34	0.43	22,802
Slovakia	9	3.33	0.46	0.45	0.01	2,090
Slovenia	22	2.54	0.68	0.33	0.34	4,423
South Africa	47	7.60	0.78	0.40	0.38	22,117
South Korea	76	5.06	0.54	0.40	0.14	7,192
Sri Lanka	10	4.24	0.46	0.15	0.31	10,596
Thailand	5	10.31	0.37	0.03	0.34	9,410
Turkey	36	5.13	0.56	0.34	0.22	10,795
UAE	13	2.42	0.76	0.44	0.32	8,859
Ukraine	7	5.92	0.15	0.05	0.10	2,557
Vietnam	1	11.24	0.83	0.17	0.67	1,188

Note: N is the number of firms. The home economies include 44 emerging economies.

Table 4: EMNEs' Multinational Performance: The Role of Location Choice

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MULT	2.5582*	9.9281**						
	(1.408)	(3.945)						
$MULT^2$		-7.1263*						
		(3.744)						
$MULT^{D'ED}$			2.2987	10.8318**			2.9213*	10.9225**
			(1.438)	(4.376)			(1.566)	(4.426)
$(MULT^{D'ED})^2$				-10.6637**				-10.1055**
				(5.053)				(4.944)
$MULT^{D'ING}$					0.8944	3.0772	2.0329	2.6255
					(1.712)	(4.200)	(1.854)	(4.122)
$(MULT^{D'ING})^2$						-3.1059		-1.2616
						(4.826)		(4.808)
SIZE	2.2328***	2.2355***	2.2479***	2.2236***	2.2589***	2.2547***	2.2330***	2.2105***
	(0.783)	(0.788)	(0.787)	(0.788)	(0.787)	(0.785)	(0.783)	(0.784)
LEV	-6.3557***	-6.3572***	-6.3444***	-6.3984***	-6.3686***	-6.3832***	-6.3499***	-6.4061***
	(0.681)	(0.678)	(0.681)	(0.680)	(0.682)	(0.682)	(0.681)	(0.679)
PROD	2.3473***	2.3635***	2.3593***	2.3523***	2.3576***	2.3532***	2.3493***	2.3423***
	(0.839)	(0.846)	(0.843)	(0.848)	(0.846)	(0.844)	(0.839)	(0.844)
AGE	-1.3023	-1.5197	-1.5218	-1.4345	-1.3654	-1.3507	-1.3613	-1.2959
	(1.370)	(1.374)	(1.355)	(1.335)	(1.356)	(1.352)	(1.356)	(1.334)
ECON	0.4509	0.3620	0.3873	0.5353	0.3477	0.3502	0.4486	0.5811
	(1.195)	(1.187)	(1.194)	(1.178)	(1.197)	(1.197)	(1.193)	(1.179)
GROW	0.2511***	0.2524***	0.2526***	0.2529***	0.2542***	0.2550***	0.2510***	0.2519***
	(0.069)	(0.068)	(0.069)	(0.069)	(0.068)	(0.069)	(0.069)	(0.069)
HOMI	-3.2832	-3.1484	-3.1043	-3.0587	-3.1126	-3.0920	-3.2559	-3.1825
	(2.129)	(2.120)	(2.115)	(2.091)	(2.139)	(2.134)	(2.141)	(2.114)
HOSI	0.2557	0.2403	0.0279	-0.0485	0.1962	0.2589	0.1935	0.1224
	(0.353)	(0.353)	(0.331)	(0.326)	(0.367)	(0.392)	(0.365)	(0.376)
Adj R-squared	0.135	0.136	0.135	0.136	0.134	0.134	0.135	0.136
No. observation	4227	4227	4227	4227	4227	4227	4227	4227
F statistics	11.850	11.471	12.549	11.912	12.321	11.744	12.164	11.089

Note: Return on assets is the dependent variable. All models control for firm and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01.

Table 5: EMNEs' Multinational Performance: The Role of Ownership Structure

	(1) POE	(2) POE	(3) POE	(4) POE	(5) SOE	(6) SOE	(7) SOE	(8) SOE
MULT	2.8166*	11.2609**			1.3810	3.5459		
	(1.606)	(4.455)			(1.984)	(5.539)		
$MULT^2$		-8.1080*				-2.1667		
		(4.137)				(5.794)		
$MULT^{D'ED}$			3.3480*	11.3095**			1.0219	9.7232*
			(1.804)	(4.914)			(1.971)	(5.091)
$(MULT^{D'ED})^2$				-10.1729*				-10.1519**
				(5.546)				(5.039)
$MULT^{D'ING}$			2.0553	2.3824			1.9860	2.7645
			(2.070)	(4.718)			(3.008)	(5.214)
$(MULT^{D'ING})^2$				-1.0670				-0.6461
				(5.647)				(5.825)
SIZE	2.2123***	2.2220***	2.2095***	2.1698***	1.9906**	1.9806**	1.9704**	2.1051**
	(0.822)	(0.828)	(0.822)	(0.820)	(0.867)	(0.885)	(0.864)	(0.856)
LEV	-6.5385***	-6.5407***	-6.5330***	-6.5899***	-4.6802***	-4.6748***	-4.6968***	-4.6820***
	(0.747)	(0.743)	(0.747)	(0.745)	(1.273)	(1.279)	(1.281)	(1.268)
PROD	2.3228***	2.3416***	2.3230***	2.3168***	2.0778**	2.0821**	2.0519**	2.0396**
	(0.867)	(0.875)	(0.866)	(0.872)	(0.806)	(0.812)	(0.796)	(0.789)
AGE	-1.7907	-1.9875	-1.8970	-1.7611	-1.3722	-1.4693	-1.2966	-1.7421
	(1.827)	(1.820)	(1.811)	(1.803)	(1.517)	(1.561)	(1.486)	(1.440)
ECON	0.2509	0.1196	0.2577	0.3615	1.8995	1.8883	1.9875	2.3259
	(1.400)	(1.388)	(1.400)	(1.387)	(1.611)	(1.617)	(1.762)	(1.685)
GROW	0.2690***	0.2714***	0.2692***	0.2698***	0.1181	0.1152	0.1228	0.1244
	(0.074)	(0.073)	(0.074)	(0.074)	(0.107)	(0.106)	(0.109)	(0.109)
HOMI	-4.3067*	-4.1880*	-4.2874*	-4.2096*	1.2872	1.3493	1.2818	1.2436
	(2.462)	(2.451)	(2.471)	(2.462)	(3.274)	(3.224)	(3.243)	(3.022)
HOSI	0.4588	0.4303	0.3575	0.2478	-0.8333**	-0.8240**	-0.8096**	-0.7206**
	(0.410)	(0.410)	(0.436)	(0.450)	(0.370)	(0.362)	(0.362)	(0.345)
Adj R-squared	0.136	0.137	0.136	0.137	0.213	0.211	0.211	0.216
No. observation	3768	3768	3768	3768	459	459	459	459
F statistics	10.868	10.561	11.159	10.259	3.688	3.636	4.896	4.373

Note: Return on assets is the dependent variable. All models control for firm and time fixed effects. Models 1-4 include POEs. Models 5-8 include SOEs. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01.

APPENDIX A (Containing results that are available upon request)

Table A1: Number of Firms and Key Variables by EMNEs' Host Economies

Country	N	Ownership
Afghanistan	2	95.21
Albania	25	83.99
Algeria	14	68.73
Angola	13	78.73
Antigua and Barbud	3	100.00
Argentina	124	69.72
Armenia	10	72.66
Australia	435	87.33
Austria	111	87.10
Azerbaijan	13	67.63
Bahamas	6	82.82
Bahrain	67	66.83
Bangladesh	24	67.98
Barbados	1	100.00
Belarus	27	71.97
Belgium	91	82.77
Benin	5	92.40
Bermuda	107	69.51
Bolivia	4	70.29
Bosnia and Herzegovina	42	74.00
Botswana	51	92.37
Brazil	360	68.99
British Virgin Islands	1076	88.36
Brunei	12	79.62
Bulgaria	290	79.30
Burkina Faso	3	73.83
Burundi	1	100.00
Cambodia	18	73.28
Cameroon	8	81.52
Canada	178	71.94
Cayman Islands	220	78.27
Central African Republic	1	100.00
Chile	134	78.56
China	3605	71.35
Colombia	78	63.63
Congo	9	93.52
Congo Democratic	7	64.42
Costa Rica	12	68.90
Cote d'Ivoire	8	77.91
Croatia	66	78.52
Curacao	10	90.30
Cyprus	304	89.36
Czech Republic	438	84.97
Denmark	38	65.37

Note: N is the number of firms. The host economies include 177 economies. "Ownership" refers to the average equity stake held by EMNEs in their subsidiaries.

Table A1: Number of Firms and Key Variables by EMNEs' Host Economies [Continued]

Country	N	Ownership
Djibouti	3	60.00
Dominican Republic	8	65.14
Ecuador	18	72.78
Egypt	130	76.63
El Salvador	7	83.33
Estonia	156	72.62
Ethiopia	2	75.38
Fiji	2	91.83
Finland	37	75.17
France	171	82.12
Gabon	2	50.78
Gambia	1	40.00
Georgia	21	75.55
Germany	413	84.25
Ghana	25	79.73
Gibraltar	4	86.39
Greece	264	61.53
Guatemala	14	64.65
Guinea	4	71.14
Guinea-Bissau	2	88.75
Haiti	1	50.01
Honduras	7	81.77
Hong Kong	1434	86.07
Hungary	119	81.63
Iceland	3	66.17
India	312	65.33
Indonesia	318	77.73
Iran	10	56.15
Iraq	10	62.56
Ireland	67	84.69
Israel	84	69.24
Italy	134	80.62
Jamaica	3	54.27
Japan	132	77.54
Jordan	44	71.95
Kazakhstan	56	70.68
Kenya	32	79.35
Kosovo	7	66.61
Kuwait	59	38.44
Kyrgyzstan	5	50.20
Laos	9	71.56
Latvia	118	84.78
Lebanon	41	93.37
Lesotho	14	92.43
Liberia	83	90.39

Note: N is the number of firms. The host economies include 177 economies. "Ownership" refers to the average equity stake held by EMNEs in their subsidiaries.

Table A1: Number of Firms and Key Variables by EMNEs' Host Economies [Continued]

Country	N	Ownership
Libya	6	62.68
Liechtenstein	2	69.99
Lithuania	132	83.38
Luxembourg	68	82.90
Macao	67	79.29
Macedonia	42	81.90
Madagascar	1	100.00
Malawi	13	91.45
Malaysia	333	73.03
Maldives	16	61.41
Mali	8	62.36
Malta	43	93.32
Marshall Islands	16	89.20
Mauritania	3	78.62
Mauritius	161	78.22
Mexico	537	70.97
Moldova Republic	15	73.71
Monaco	3	90.80
Mongolia	15	62.40
Montenegro	15	79.69
Morocco	28	82.94
Mozambique	26	85.79
Myanmar	15	66.35
Namibia	90	80.18
Nepal	6	71.69
Netherlands	492	86.52
New Zealand	67	85.50
Nicaragua	5	91.33
Niger	1	49.00
Nigeria	45	80.42
Norway	44	86.41
Oman	57	69.10
Pakistan	39	65.11
Palestinian Territories	6	80.47
Panama	101	75.87
Papua New Guinea	14	80.49
Paraguay	5	71.54
Peru	84	74.44
Philippines	134	64.57
Poland	477	77.42
Portugal	26	91.97
Qatar	62	64.91
Romania	252	81.90
Russia	918	76.22
Rwanda	4	70.35

Note: N is the number of firms. The host economies include 177 economies. "Ownership" refers to the average equity stake held by EMNEs in their subsidiaries.

Table A1: Number of Firms and Key Variables by EMNEs' Host Economies [Continued]

Country	N	Ownership
Samoa	14	94.93
Saudi Arabia	114	58.83
Senegal	4	92.90
Serbia	110	79.54
Seychelles	6	98.02
Sierra Leone	3	88.91
Singapore	580	80.94
Slovakia	161	85.04
Slovenia	66	63.33
Solomon Islands	3	97.10
South Africa	280	74.56
South Korea	360	44.88
Spain	115	88.43
Sri Lanka	82	61.22
Sudan	13	64.15
Suriname	4	60.00
Swaziland	24	90.30
Sweden	68	80.91
Switzerland	127	87.77
Syria	18	72.93
Taiwan	42	73.23
Tajikistan	4	48.37
Tanzania, United Republic	24	77.81
Thailand	194	56.51
Togo	1	75.00
Tonga	1	100.00
Trinidad and Tobago	4	95.71
Tunisia	16	51.17
Turkey	268	57.38
Turkmenistan	5	45.48
UAE	224	80.01
Uganda	15	85.01
UK	806	88.45
Ukraine	196	74.03
Uruguay	42	85.44
US	1080	74.68
Uzbekistan	15	76.72
Vanuatu	3	97.33
Venezuela	25	77.24
Vietnam	127	63.95
Yemen	1	10.00
Zambia	32	92.20
Zimbabwe	25	69.68

Note: N is the number of firms. The host economies include 177 economies. "Ownership" refers to the average equity stake held by EMNEs in their subsidiaries.

Table A2: Additional Robustness Checks (1)

	(1) Cubic model	(2) Sub-period: 2004-2007	(3) Sub-period: 2008-2013	(4) Subsidiary ownership>0.25	(5) One lag model	(6) Two lags model	(7) Three lags model
MULT	11.4887	-8.6289	10.1381**	11.2475***			
	(12.731)	(6.791)	(5.154)	(4.216)			
$MULT^2$	-10.4557	11.5049*	-7.3791	-9.2940**			
	(26.611)	(6.722)	(4.926)	(3.981)			
$MULT^3$	2.0734						
	(16.590)						
MULT (one lag)					0.1000*		
					(0.053)		
$MULT^2$ (one lag)					-0.0712		
					(0.052)		
MULT (two lags)						0.1581**	
						(0.066)	
$MULT^2$ (two lags)						-0.1543**	
						(0.061)	
MULT (three lags)							0.0457
							(0.055)
$MULT^2$ (three lags)							-0.0788*
							(0.047)
Controls	X	X	X	X	X	X	X
Adj R-squared	0.136	0.148	0.098	0.133	0.037	0.041	0.041
No. observation	4227	846	3378	3863	3384	2593	1898
F statistics	11.233	3.838	8.542	10.983	5.417	4.325	4.834

Note: Return on assets is the dependent variable. Model 1 adds a cubic term to test the potential cubic relationship. Models 2-3 are used to test the MP relationship in different sub-periods. Model 4 uses 25.01% instead of 10.01% as subsidiary ownership threshold when defining a foreign subsidiary. Models 5-7 are different lag models, including from one-year lag to three-year lags models. All models control for firm and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01.

Table A3: Additional Robustness Checks (2)

	(1)	(2)	(3)
$OS^{D'ED}$	-0.0768		
	(0.063)		
$(OS^{D'ED})^2$	0.0015*		
	(0.001)		
$OS^{D'ING}$	0.0206		
	(0.046)		
$(OS^{D'ING})^2$	-0.0003		
	(0.000)		
$OC^{D'ED}$		0.0764	
		(0.305)	
$(OC^{D'ED})^2$		-0.0016	
		(0.017)	
$OC^{D'ING}$		0.2344	
		(0.220)	
$(OC^{D'ING})^2$		-0.0134*	
		(0.007)	
$FSTS^{D'ED}$			4.2495
			(3.784)
$(FSTS^{D'ED})^2$			-2.4986
			(3.689)
$FSTS^{D'ING}$			-4.6390
			(4.903)
$(FSTS^{D'ING})^2$			5.9820
			(4.971)
SIZE	2.2639***	2.2449***	4.1939***
	(0.795)	(0.791)	(1.311)
LEV	-6.3623***	-6.3997***	-6.7071***
	(0.691)	(0.684)	(1.146)
PROD	2.3727***	2.3451***	4.5967***
	(0.855)	(0.846)	(1.184)
AGE	-1.6909	-1.3666	-0.2398
	(1.418)	(1.373)	(1.846)
ECON	0.3761	0.4168	1.0698
	(1.227)	(1.211)	(1.414)
GROW	0.2515***	0.2549***	0.1283
	(0.068)	(0.069)	(0.079)
HOMI	-3.2826	-3.1059	-2.6867
	(2.056)	(2.170)	(3.813)
HOSI	0.0958	0.2051	-0.1724
	(0.335)	(0.334)	(0.497)
Adj R-squared	0.136	0.134	0.166
No. observation	4227	4227	1501
F statistics	10.255	11.115	5.824

Note: Return on assets is the dependent variable. OS refers to the number of overseas subsidiaries, OC refers to the number of overseas countries. FSTS refers to the ratio of overseas majority-owned subsidiaries' sales to all majority-owned subsidiaries' sales. All models control for firm and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01.

Table A4: Additional Robustness Checks (3)

	(1) All MNEs ROS	(2) All MNEs ROE	(3) All MNEs Net profit	(4) All MNEs Gross profit	(5) POEs High-tech sectors	(6) POEs Low-tech sectors	(7) POEs Manufacturing sectors	(8) POEs Service sectors
$MULT^{D'ED}$	15.2558**	30.2640**	1.4546***	0.5833**	0.3099	0.6552***	0.5639**	0.4931
	(6.239)	(12.764)	(0.511)	(0.228)	(0.341)	(0.234)	(0.236)	(0.343)
$(MULT^{D'ED})^2$	-14.0463**	-32.0736**	-1.4829***	-0.5370**	-0.1620	-0.6570***	-0.5208**	-0.3689
	(7.135)	(13.889)	(0.521)	(0.240)	(0.434)	(0.236)	(0.247)	(0.399)
$MULT^{D'ING}$	-5.6760	2.0535	-0.2426	-0.0941	-0.2259	-0.0037	-0.2816	0.1166
	(6.903)	(8.337)	(0.475)	(0.208)	(0.331)	(0.308)	(0.246)	(0.496)
$(MULT^{D'ING})^2$	4.6698	1.4523	0.0993	0.2111	0.3477	-0.0013	0.1561	0.1541
	(8.355)	(10.765)	(0.545)	(0.202)	(0.343)	(0.290)	(0.263)	(0.426)
SIZE	1.0117	5.3273***	0.7957***	0.8745***	0.8414***	0.8559***	0.8634***	0.8727***
	(2.224)	(1.847)	(0.108)	(0.042)	(0.069)	(0.056)	(0.050)	(0.066)
LEV	-8.6172***	-14.7209***	-0.5676***	-0.0559**	-0.0721	-0.0665**	-0.0710**	-0.0367
	(1.137)	(2.253)	(0.062)	(0.024)	(0.046)	(0.028)	(0.028)	(0.043)
PROD	1.5549	5.9880***	0.7592***	0.8897***	0.8650***	0.8850***	0.8834***	0.8953***
	(2.381)	(2.089)	(0.108)	(0.042)	(0.063)	(0.058)	(0.055)	(0.060)
AGE	-2.9856	-0.7021	-0.3495*	0.0124	-0.2346	0.0718	-0.1997	0.0415
	(2.714)	(4.113)	(0.195)	(0.099)	(0.196)	(0.140)	(0.134)	(0.175)
ECON	2.4653	2.0466	0.2538	0.0558	0.2051**	0.1615**	0.1306*	0.3598***
	(2.205)	(3.383)	(0.160)	(0.066)	(0.085)	(0.081)	(0.072)	(0.124)
GROW	0.3135***	0.5494***	0.0353***	-0.0004	0.0050	-0.0035	0.0011	-0.0067
	(0.097)	(0.152)	(0.008)	(0.003)	(0.006)	(0.005)	(0.003)	(0.007)
HOMI	4.9487	-7.1859	0.4985*	0.0765	-0.1022	0.0219	0.1556	-0.2653
	(3.134)	(7.282)	(0.258)	(0.104)	(0.204)	(0.139)	(0.150)	(0.186)
HOSI	-1.0610	0.4676	-0.0632	0.0006	0.0114	-0.0092	-0.0240	0.0303
	(0.844)	(0.947)	(0.050)	(0.023)	(0.048)	(0.032)	(0.025)	(0.052)
Adj R-squared	0.081	0.095	0.219	0.624	0.694	0.559	0.641	0.589
No. observation	4115	4227	2946	3517	892	2185	1730	1223
F statistics	7.682	7.419	18.448	71.020	44.984	41.338	49.927	33.369

Note: ROA is dependent variable in Model 5-8. Models 1-4 employ alternative performance measures, including ROS, ROE, net and gross profit. Models 5-8 conduct POE sectoral analysis (high- vs. low-tech; manufacturing vs. service). All models control for firm and time fixed effects. Values in parentheses are robust standard errors. Significance levels: *0.1; **0.05; ***0.01.